

**Amendments to the Claims**

1. (Currently Amended) A process for measuring pressure buildup in one or more body compartments that encases muscular tissue, comprising the steps of:
  - transmitting ultrasonic waves into a body compartment;
  - capturing a sequence of reflections of the transmitted ultrasonic waves;
  - converting the ultrasonic sequence into an electrical sequence;
  - mathematically manipulating the electrical sequence such that amplitude changes of the manipulated sequence, at a substantially constant frequency, correspond to phase changes of the ultrasonic sequence;
  - analyzing amplitude changes of the manipulated sequence to identify the effect of pulsatile components on at least one surface layer of the body compartment; and
  - categorizing pressure build up in the body compartment based on the identified effect.
2. (Canceled)
3. (Previously presented) The process of claim 1, wherein the step of mathematically manipulating the electrical sequence includes the step of identifying characteristics of the body compartment selected from the group consisting of the blood vessel network, compartment boundary and combinations thereof.
4. (Previously presented) The process of claim 3, wherein the step of identifying characteristics of the body compartment comprises identifying blood vessel network characteristics of the body compartment through a broadband ultrasonic transmit/receive transducer.

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5. (Previously presented) The process of claim 3, wherein the step of identifying characteristics of the body compartment comprises identifying compartment boundary characteristics of the body compartment through a pure-tone ultrasonic transmit/receive transducer.
6. (Previously presented) The process of claim 1, wherein the step of capturing a sequence of reflections includes means for capturing temporal reception of ultrasonic waves.
7. (Previously presented) The process of claim 6, wherein the step of mathematically manipulating the electrical sequence such that amplitude changes of the manipulated sequence, at a substantially constant frequency, correspond to phase changes of the ultrasonic sequence comprises utilizing the Fourier Transform method.
8. (Original) The process of claim 1, further comprising the step of placing the body compartment at maximum distension prior to assessing the body compartment configuration.
9. (Original) The process of claim 1, wherein the body compartment comprises a tubular shaped collagenous membrane selected from the group consisting of arm, leg, other muscle groups and combinations thereof.
10. (Original) A method for preventing tissue necrosis comprising the process of claim 1.
11. (Currently Amended) ~~An incision product produced by determining the presence of Compartment Syndrome from the process of claim 1.~~ The process of claim 1 further comprising the step of alleviating at least a portion of the pressure build up through the use of an incision product.
12. (Currently Amended) ~~A non-incision product produced by determining the absence of Compartment Syndrome from the process of claim 1.~~ The process of claim 1 further comprising

the step of alleviating at least a portion of the pressure build up through the use of a non incision product.

13. (Currently Amended) An apparatus for non-invasively measuring pressure build-up in one or more body compartments that encase muscular tissue, comprising:
- (a) a transmitting device for imparting ultrasonic waves into ~~the~~ one or more body compartments that are not being subjected to externally applied blood flow occluding pressure;
  - (b) means for positioning the transmitting device adjacent to the one or more body compartments effective for imparting the ultrasonic waves therein;
  - (c) means for capturing reflections of the imparted ultrasonic waves and converting the reflected waves into electrical signals;
  - (d) means for mathematically manipulating the electrical signals; and,
  - (e) means for categorizing pressure build-up in the one or more body compartments from the mathematical manipulations.
14. (Original) The apparatus of claim 13, wherein the transmitting device comprises a transducer.
15. (Original) The apparatus of claim 13, wherein the means for placing the transducer comprises a gel.
16. (Original) The apparatus of claim 13, wherein the means for capturing comprises a retention means selected from the group consisting of storage, display, analysis and combinations thereof.
17. (Original) The apparatus of claim 13, wherein the mathematical manipulation of the electrical signals comprises Fourier Transform manipulation.

18. (Original) The apparatus of claim 13, wherein the means for categorizing pressure build-up further comprises means for identifying a decrease in the captured imparted ultrasonic waves.
19. (Original) The apparatus of claim 13, wherein the means for categorizing pressure build-up further comprises means for identifying a ratio of low-frequency amplitudes to high frequency amplitudes present in the mathematical manipulation.
20. (Original) The apparatus of claim 13, wherein categorizing pressure build-up in one or more body compartment comprises a body compartment selected from the group consisting of arms, legs, other muscle groups and combinations thereof.
21. (Original) The apparatus of claim 13, wherein the means for capturing comprises a receiver.
22. (Original) The apparatus of claim 13, wherein the means for categorizing pressure build-up comprises means for assessing a body compartment configuration and identifying the effect of pulsatile components on at least one dimension of the body compartment.
23. (Original) The apparatus of claim 22, wherein the means for categorizing pressure build-up further comprises a time-reversal technique.
24. (Currently Amended) An apparatus for non-invasively measuring pressure build-up in one or more body compartments that encase muscular tissue comprising:
  - (a) a transmitting device for imparting ultrasonic waves into ~~the~~ one or more body compartments that are not being subjected to externally applied blood flow occluding pressure;
  - (b) means for positioning the transmitting device adjacent to the one or more body compartments effective for imparting the ultrasonic waves therein;
  - (c) a receiver for capturing reflections of the imparted ultrasonic waves;

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- (d) means for mathematically manipulating the ultrasonic waves captured by the receiver;  
and,
- (e) means for categorizing pressure build-up in the one or more body compartments from  
the mathematical manipulations.